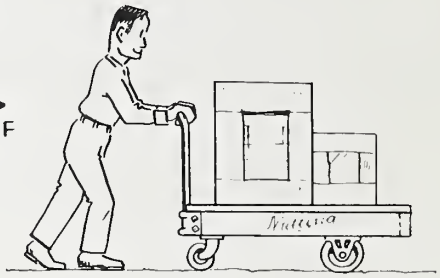
AMC SAFETY DIGEST

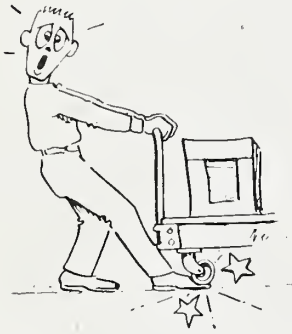
AMCP 385-94 ✶✶✶ MARCH 1970

BE A SAFE DRIVER

WHY WE PUSH

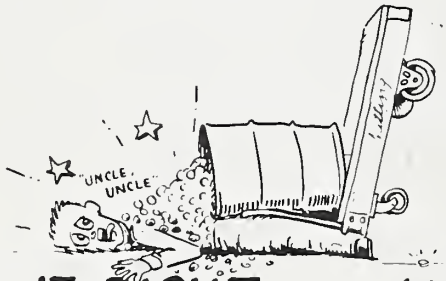
THIS IS RIGHT ...→
LESS STRAIN · ALL PARTS OF BODY ARE AWAY FROM LOAD





THESE ARE WRONG ···

WALKING BACKWARD CAN BE DANGEROUS ANY-TIME ... AND A BUGGY BEING PULLED TIPS EASIER BECAUSE THE WHEELS ARE CLOSER TOGETHER.



DO IT RIGHT · · ·AVOID INJURY

SAFETY POSTER
Sperry Rand Corporation, Louisiana Army Ammunition Plant

HEADQUARTERS
UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON, D.C. 20315

AMC Pamphlet 385-94 MARCH 1970

The Safety Digest is an AMC Pamphlet prepared by the Safety Office Headquarters, U. S. Army Materiel Command. Its purpose is to disseminate information which can materially influence and improve safety programs at all Command establishments.

Articles are included to supplement technical knowledge as well as practical knowledge gained through experience. They provide a basis for the further refinement of safety measures already incorporated in operating procedures and process layout. To achieve maximum effectiveness, the Safety Digest should be given widespread circulation at each AMC establishment.

Articles appearing in the Safety Digest are unclassified and are not copyrighted. They may be reproduced as desired in order to bring pertinent accident prevention information to the attention of all employees. The Army Materiel Command Safety Digest should be given a credit line when articles are extracted.

Unclassified material believed to be of interest or benefit to other establishments is welcome for publication in the Safety Digest. Please send articles for review to: U. S. Army Materiel Command Field Safety Agency, Charlestown, Indiana. If possible, include pictures, charts, drawings, and illustrations that clarify and heighten interest in your presentation.

AMCSF

FOR THE COMMANDER:

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Chief of Staff

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Special Distribution 1

IN THIS ISSUE

DESERET TEST CENTER

AIDS COMMUNITY SAFE DRIVING PROGRAM

Lawrence E. Smith, Safety Officer
Deseret Test Center

Deseret Test Center united with the Utah Safety Council and the Tooele Civic League recently to present the National Safety Council's Defensive Driving Program in Tooele, Utah.

The Defensive Driving Course teaches what is involved in driving defensively, why and how various types of motor vehicle accidents occur, and what it takes to prevent them. The course provides a standard of driving excellence that the student can use to evaluate and improve his own driving. Nearly 1,500,000 persons throughout the United States have completed the NSC Defensive Driving Course.

Recent trafic accidents in the Tooele community prompted the Tooele Civic League to contact the Utah Safety Council in an effort to promote safe driving in Tooele. The Defensive Driving Coordinator of the Utah Safety Council contacted the U. S. Army's Deseret Test Center Safety Division at Dugway Proving Ground, approximately 40 miles from Tooele. At Dugway a Defensive Driving Course has been in continuous existence since July 1968 and over 400 graduates, mostly residents of Tooele County, have completed the course. The Safety Division at Deseret Test Center offered to furnish two qualified instructors to travel to Tooele and present the course.

Deseret Test Center safety officer is shown instructing Defensive Driving Class at Tooele, Utah.

Using promotional material donated by the Utah Safety Council, the Tooele Civic League soon had enough volunteers to form a class of 33 members.

Mr. Walter Cooper and Mr. Lawrence Smith, Safety Officers from Deseret Test Center, were instructors in the class which graduated 24 members.

TAKE ACTION ON HAZARDS

Fred Shavers, Safety Engineer
Thiokol Chemical Corporation
Longhorn Army Ammunition Plant

Hazards and people are involved in most accidents. Both of these factors need consideration in any accident prevention effort.

Consider the personal factor, or people. Certainly they have a place in the chain of events leading up to accidents. They have the capacity to think, reason, judge and dispose according to their general knowledge and environment. This is all very fine, but let's take another look. There are also a few less desirable characteristics about people that we should consider:

- People make mistakes.
- People forget.
- People take shortcuts.
- People do not follow verbal instructions.
- People do not always follow SOPs for the job.
- Some people feel an immunity to accidents.
- Obvious safety hazards are not obvious to all people.
- People are subject to preoccupation.

Characteristics such as these are inherent in all of us and can cause trouble when hazards and people are brought in contact with one another. The safety training of employees, although very important, is not the complete answer to the accident prevention problem.

We can do wonders with attitudes but little with preoccupation. We can train employees beyond all question of a doubt, but we can never be assured that mistakes will not be made by them, or how they will react when the unexpected occurs.

We have a strong conviction that the ability to recognize hazards, is the biggest single factor in the development of safety consciousness in employees. As we concentrate on hazards we become more adept at recognizing them. At the same time, we become aware of a truth which must be thoroughly impressed in our minds. This truth can be expressed as a formula.

"The Accident Formula"
H + P = A
(Hazards + People = Accidents)

This formula indicates that accidents are the result of mixing people with hazards. Take away either the people or the hazards and most accidents will not occur.

I believe that none of you would advocate attempting to change people to any great degree, because human nature cannot be altered appreciably with any assurance of permanence. It then appears the answer to our problem lies in the control of hazards. The hazard factor in the accident formula is the only factor which can be altered or changed to eliminate the accident.

Hazards are sometimes obscure. They are not seen set apart from other objects. Usually a hazard is a condition created by the relationship of objects and their association with one another. Because of this we must develop a mental process of thinking of each hazard separately. As we check for them in any situation, we should consider them one at a time. Then by applying the H + P = A formula, we can take positive action to eliminate the hazard.

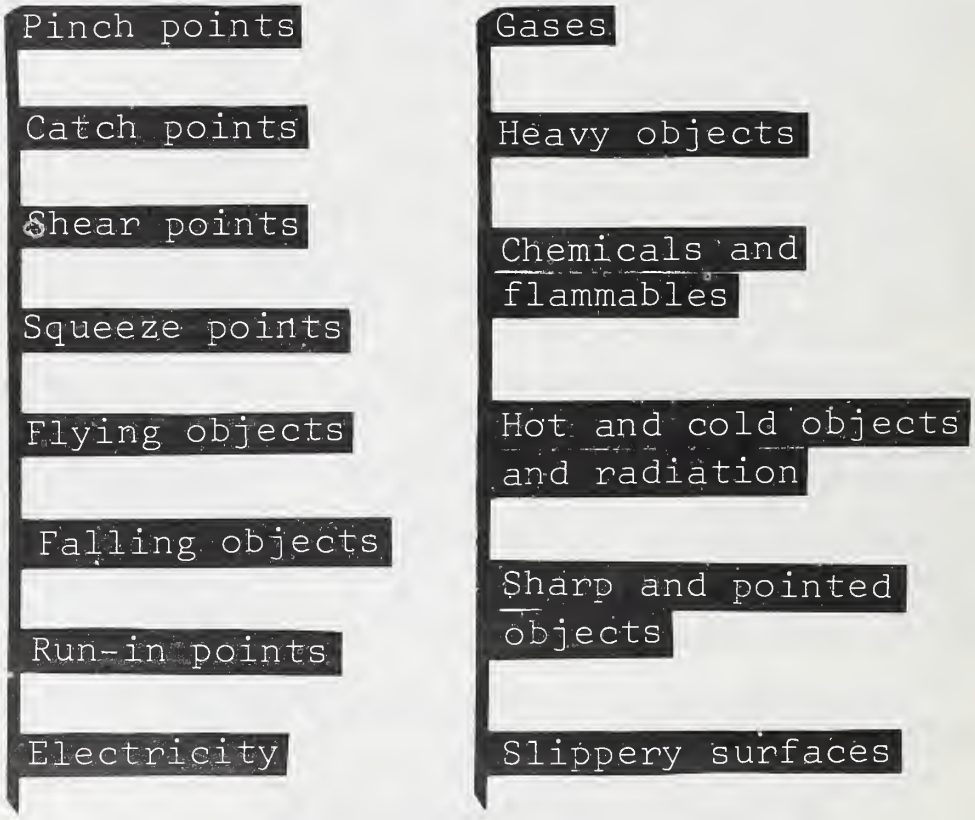
When hazards are recognized, there are five things we can do about them:

- We can eliminate the hazard.
- We can guard against the hazard.
- We can reduce the hazard.
- We can avoid the hazard.
- We can ignore the hazard.

The hazard which is eliminated is no longer a source of trouble. The hazard which is guarded against is also removed as an accident potential. When a hazard is reduced, we also reduce the likelihood of an accident. All of these approaches actually improve the safety situation.

If we assume an accident is not probable and take no action on the hazard, we are very likely to be let down by the errors and mistakes which people will make.

Here are 14 basic hazards which are part of the "Hazard Family" that every supervisor must continually keep under control——



The foreman is the master link in our system of communication. If he is to have people under his supervision and is to be responsible for accident control, he must be very cognizant of hazards as they exist or develop in his department. He is the person who must initiate positive accident prevention action whenever the hazard is recognized.

* * *

SHARPE'S AIRCRAFT RESCUE TEAM KEEPS "ON-THE-READY"

"CH-47 helicopter with two men aboard coming down at end of runway! Engine on fire! This is a drill! This is a drill! This is a drill!"

Sharpe Army Depot's monthly aircraft crash rescue drill is underway.

Using a special red phone, the control tower operator activates the Primary Crash Alarm System immediately upon receipt of the crash report. Downstairs in the flight office the call is monitored on a second red phone.

Photo 1

THIS IS A DRILL...THIS IS A DRILL...THIS IS A DRILL REPEATS Gene Redahan, Air Comptroller at Sharpe Army Depot, as he uses the red alert phone to notify all operating elements involved in the monthly aircraft rescue drill held at the depot.

One injured crew member is evacuated. Firemen in asbestos suits aid the pilot as fire fighters and equipment converge at the crash site. This photo shows the "crash scene" during the monthly aircraft crash rescue

Photo 2

This is an aerial view of the crash site for Sharpe Army Depot's monthly aircraft crash rescue drill, as seen from a helicopter used by back-up team from the California Army National Guard.

Photo 3

Crash locator data is then relayed to the post fire department, medical officer and the depot police. A National Guard helicopter responds. Security men are alerted by radio. Only essential radio traffic is conducted during the drill.

All recipients of the data are required to man the Primary Crash Alarm System 24 hours a day and to respond immediately to the alarm.

The tower operators who act as a central emergency dispatch net, alert all traffic to the emergency and grant traffic priority to rescue and search aircraft. The field is closed to air traffic if traffic will handicap the crash rescue operations. The tower also monitors requests from the crash scene for additional assistance or equipment.

Flight operations personnel activate the Primary Crash Alarm System when required and initiate the Secondary Alarm System by notifying all parties in the secondary system, specifying an assembly point. Flight operations personnel serve as the depot control center for collection and dissemination of crash data and for direction of crash investigation activities. The office obtains special weather observations for use by the Aircraft Accident Investigation Board.

Initiating the Secondary Crash Alarm System includes notifying the Director of Maintenance, Post Adjutant, Post Engineer, Motor Pool, Information Officer and the Installation Intelligence Officer.

In responding to the Crash Alarm, the Provost Marshal picks up a photographer from the Photo Lab and takes him to the assembly point after dispatching sufficient personnel to provide order and security at the crash scene. He also provides guards on a 24-hour basis, escorts for vehicle movement, and monitors ground traffic.

The Post Medical Officer dispatches medical personnel to the crash scene by ambulance or helicopter. He obtains off-post ambulance and medical assistance when necessary.

Sharpe's fire department, with the necessary fire-fighting and rescue equipment, supervises the crash site until the fire is under control. At this point, control of the crash site is turned over to the Aviation Safety Officer.

Casting a critical eye on this scene of organized chaos is the Aviation Safety Officer. He times the

rescue operations and questions the participants. His report on the drill is made up from his observations and the answers he obtains. If he is not satisfied with the speed and dispatch with which the drill is executed, there may be another drill the following day.

Editor's Note: During a recent aviation safety survey of Sharpe Army Depot, a representative from the AMC Safety Office observed a simulated crash rescue drill as described above. It was one of the most professionally executed drills ever witnessed. Such a display is truly a tribute to the Aviation Safety Officer and all the personnel involved that support that activity.

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AIRCRAFT SAFETY SYSTEM DEVELOPED

The Department of the Army recently announced plans to incorporate a new Army-developed Crash Resistant Fuel System (CRFS) in its fleet of nearly 11,600 aircraft.

The first aircraft to have the new life-saving system will roll off the production line in the spring of 1970. Nearly all Army aircraft are expected to be converted to CRFS by 1975.

Army aviation safety experts estimate the new fuel system will cut deaths due to post-crash fires by 72 per cent by minimizing fire hazards due to ruptured fuel tanks and lines.

The life-saving characteristics of the new system were achieved through a combination of design use of high impact resistant materials and self-sealing fuel tanks, coupled with break-away fuel lines.

The Army pointed out that the new fuel system would have wide application in civil as well as military aviation.

The Army provided the impetus and nearly $2 million in funds for initial research and development on the concept by Goodyear Tire and Rubber Company and the Dynamic Sciences Division of Marshall Industries, Phoenix, Arizona, who were under contract to the U. S. Army Aviation Materiel Laboratories (AVLABS), Fort Eustis, Virginia.

Designed for use in Bell UH-1D and H model helicopters built for the Army by Bell Helicopter Company, Fort Worth, Texas, CRFS was also approved for use in Bell's AH-1G "Cobras" and the UH-1B and C model helicopters. The UH-1 series aircraft has been the mainstay of Army mobility in Vietnam.

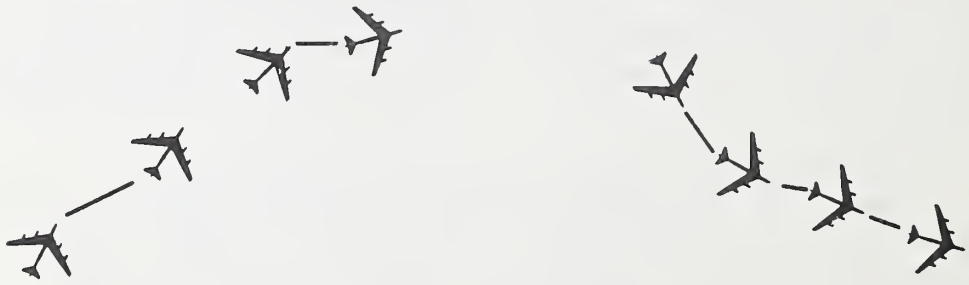
The new fuel systems are being produced by Goodyear Tire and Rubber's Litchfield Park, Arizona, facility under contract to Bell Helicopter Company.

Besides its ability to prevent fuel dispersion during crash impact, CRFS offers greater protection from enemy gun fire than existing fuel tanks. The new fuel system will seal bullet holes from both .30 and .50 caliber machine gun slugs. The UH-1 aircraft used in combat have a .30 caliber hole-sealing capability only.

To illustrate potential savings in human lives and resources which could be expected to accrue through the use of the new fuel system, Army spokesmen cited 1967, 1968 and 1969 post-crash fire statistics. During this period the Army experienced 334 aircraft accidents, of which 206 were survivable except for the presence of post-crash fire. Fire fatalities numbered 155 with an additional 470 receiving burn injuries. Approximately $80 million in materiel losses occurred in these fires.

Citing the increase in survivability offered by CRFS, Army spokesmen said under comparable circumstances the mortality figure would be reduced from 155 to 44 and burn injuries would be reduced from 470 to 132. Materiel savings in terms of dollars would have amounted to $58 million.

Extracted from a US Army Aviation Materiel Laboratories news release.



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ACCIDENT PREVENTION
THROUGH A HEALTHY BODY AND MIND

It was once said "An ounce of prevention is worth a pound of cure".

What better subject do we have to work with than ourselves. This is an area where most say "leave the body and mind to the doctor" then continue to violate his teachings.

The other day, being accident-prevention minded, the over-the-hill bunch had their every-so-often talk by the flight surgeon.

His talk was so enlightening that the main topic of discussion for many days was prevention through health. Crash diets were observed. Jogging was the "in" thing and each aviator and a few overweight mechanics and tower operators joined the band wagon.

The question of course that one wonders about is what magic note did he strike that could motivate this collective group? He merely stated that "this was the first day of the rest of our lives." That through some self help many could extend the time upwards from days to years. That through health improvements accidents can be prevented and finally "that most accident causes probably generate in a rundown body or cluttered mind." Quite a mouth full.

One of our slightly heavy people asked the good doctor if he thought he was too heavy? Looking him over from head to foot, then straight in the eye, he said, "No I don't think you are too heavy but you are about one foot six inches too short."

The class continued and broached the subjects that effect our body and mind in accident prevention.

Coffee drinkers attention! This American past time really does lend itself to some of our dilemma of maintaining constant alertness. It is a fact that when too much coffee is consumed, you become nervous and responsiveness just isn't up to par. Even though coffee is everywhere, cut down your input and increase your alertness.

Smoking! To condemn smoking is like trying to vote for some one who has already won the election. It most certainly is fact that smoking is dangerous to health and will shorten your life.

The many hundreds of reports on smoking all condemn it, not one sings its praise.

The fact that cigarettes cause damage to the lungs is well known but did you know they also cause damage to your heart? The nicotine content has a toxic effect on the heart by activating the sympathetic nervous system, sending more hormones to the heart than it needs, eventually causing scarring.

A major study on men who smoked indicated that heavy cigarette smokers suffered heart attacks at a rate three times that of nonsmokers.

There are two comforting facts that might elate you puffers. One, if you were a heavy smoker and quit, the toxic effects on the heart usually disappear within a few weeks, providing no permanent damage has been experienced. Two, if you decide not to give up smoking a vigorous conditioning program will probably reduce the harmful effects. Notice I said reduce not stop the harmful effects.

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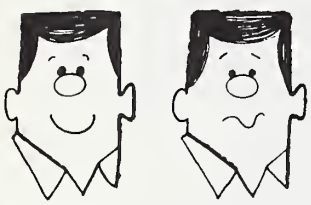

Alcohol! The rule of 24 hours from the bottle to throttle is a good one. However, it should be mandatory that at least 12 hours elapse between drinking and flying.

In short, alcohol dulls the senses and fatigues the body. Body tissues just don't receive enough oxygen, thus hypoxia.

• • •

Next, I would like to dwell on obesity or near obesity. The definition normally excepted is "very fat". This condition is really a sickness and should be treated by doctors as such.

In our business, the watch dog for flight physicals normally prevents us from reaching the stage of obesity. What I should add is, and remain on flight status.

Overweight people are more likely to have or contract heart disease, diabetes, high blood pressure, and kidney disease.

If you consistently overeat, then exercise to dilute some of the harmful effects. Always remember the best exercise is pushing yourself away from the table.

Studies indicate that on the average overweight people are poorer surgical risks than their trim counterparts. The important point of all this is--on the average, overweight people die younger than those who are prudent in their eating habits.

• • •

Aerobics! Now we come to the whole point of trying to prevent accidents through the body and mind. Aerobics literally means "with oxygen" and thus is the foundation of a sounder body and a keener mind.

Doctor Kenneth H. Cooper, a former Army Flight surgeon, now with the Air Force, wrote a book entitled "Aerobics." This book will stir the desire for health in all of you.

In his study Dr. Cooper found many facts about exercise or training that heretofore were unknown or not taught. His exercise programs are palatable and yet do the job.

As an example, what other program lets you have your choice of exercises and even gives credit for golf and skiing? In summary, his findings, and his program will prevent accidents through better body and mental health. Some of these findings are:

The efficiency of the lungs increases, conditioning them to process more air with less effort.

The efficiency of the heart increases. It grows stronger and pumps more blood with each stroke, reducing the number of strokes necessary.

The number and size of blood vessels that carry the blood to the body tissues, increases, saturating the tissues with energy producing oxygen.

The total blood volume increases.

The tone of the muscles and blood vessels improves, changing weak and flabby tissue to strong and firm tissue.

Fat weight is changed to lean, often toughening up the body without actual weight loss.

Oxygen consumption is increased. This improves the overall condition of the most important parts of the body, the lungs, heart, blood vessels body tissues, and the brain.

I found after reading many books and articles on the subject that his was one of true value. That the key to endurance is oxygen consumption and distribution and is the best measure of your fitness.

After hearing this fine class by our surgeon, four persons underwent flight physicals. Two pilots, a mechanic, and a tower operator. The two pilots passed, however, areas for health improvement were noted. The mechanic and tower operator failed and volunteered to take part in the program of Aerobics. After two months both again underwent flight physicals and both passed with noted health improvements.

The merit of Aerobics can best be judged by the actions of our sister service, the Air Force. In my recent talk with Dr. Cooper, he stated the Air Force has adopted Aerobics as their new exercise program.

Finally, President John F. Kennedy summed it up when he said:

"Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity. The relationship between the soundness of the body and the activities of mind is subtle and complex. Much is not yet understood. But we do know what the Greeks knew: That intelligence and skill can only function at the peak of their capacity when the body is healthy and strong; that hardy spirits and tough minds usually inhabit sound bodies."

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TOP PHYSICAL CONDITION?

In view of the rapidly increasing volume of air transportation throughout the world, more and more demands are being placed on pilots for absolute maximum efficiency. A major factor in attaining and maintaining this required efficiency is, of course, excellent physical health. But did you know that one very simple way for a pilot to reduce his efficiency is to smoke?

Most pilots who smoke don't realize that, as far as their vision is concerned, tobacco, like alcohol, has a deleterious effect. Pilots who smoke impair their night vision and depth perception, and reduce their altitude tolerance. Smoking reduces one's altitude tolerance by reducing the oxygen available to the body's tissues.

Chemical analyses have revealed that incomplete combustion of tobacco produces carbon monoxide (the same gas that comes from the exhaust of your car) in smoke. Therefore, each time a person smokes, he absorbs carbon monoxide into his bloodstream. Sometimes heavy smokers reach a corbon monoxide blood saturation level of as high as 10 percent. This is alarmingly high when one realizes that a three-percent saturation level causes measurable impairment of functions, such as altitude tolerance and vision.

Major characteristics of carbon monoxide poisoning are sleepiness, reduced physical and mental powers, and loss of vision. And these characteristics are very much in evidence even before symptoms such as a headache occur.

If a pilot rapidly smokes three cigaretts before a flight, his night vision may be reduced before takeoff as much as the effects of an 8,000 foot altitude. And the carbon monoxide may cause his vision, when he is at 10,000 foot altitude, to be reduced to that of a 14,000 foot altitude.

Pilots who do smoke, even occasionally, should remember that carbon monoxide in the bloodstream dissipates very slowly. Tests have shown that up to one-half the total absorption will still be present in the blood six hours after smoking.

So, in order for a pilot to stay in top physical condition and always fly at maximum efficiency he should reduce his smoking--or better yet, QUIT!

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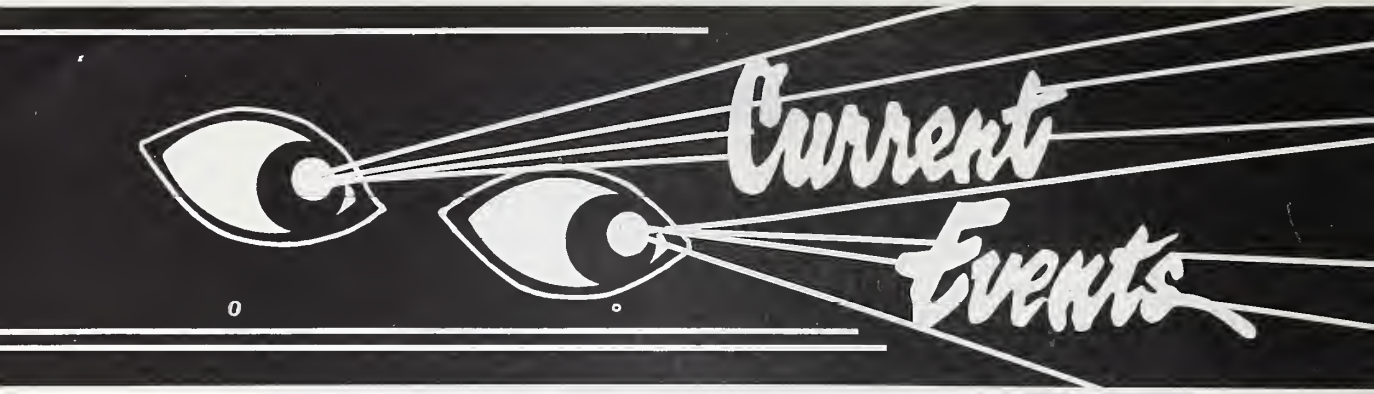

EMERGENCY EVACUATIONS PRODUCE INJURIES

The chief operator of a contractor-operated blending tower decided more ventilation was needed. He opened a ground floor exit door that led to a safety chute. As he stepped around to fasten a hook on the door, he unintentionally struck his right hand against an emergency alarm trip wire. The pressure on the wire broke a circuit and set off evacuation alarms throughout the building.

Four workers on the top floor of the building, about 85 feet above, heard the alarm and evacuated hastily. Two men went down each of the two escape chutes from the floor. During the descent the leg of one worker became twisted under his body. When he came off the end of the chute most of his weight landed on his left foot. He received multiple fractures of the ankle and was expected to be unable to work for 45 days.

Investigation revealed two facts considered to have a bearing on the accident:

1. The injured man had been given instruction and practice in descending safety chutes. The practice had been on shorter chutes instead of the ones provided for escape from the 85-foot height.

2. The evacuation alarm was easily activated. Birds frequently set it off. There had been instances when strong winds had tripped the alarm.

The following actions were taken:

1. All blending tower operators were promptly given fresh instruction and practice in using safety chutes.

2. It was decided that instruction and practice on the chutes would be given more frequently in the future. The training would be provided at least once in every four weeks.

3. An engineering study was started to determine whether another type of activating trip should be installed. The possibility of locating the trip wires to prevent accidental activation was included in the study.

Two months later the chief operator in a nearby powder blending tower building saw an arc flash in a small elevator control building 50 feet from the blending tower. He activated the emergency evacuation alarm in order to clear his crew from the blending building. A powder helper on the fourth floor came down the safety chute. His right leg became twisted under his body and he landed hard. He sustained a compound fracture of his right leg and was expected to be disabled for 45 days.

Investigation revealed two factors that contributed to the accident:

1. The worker, like the man injured earlier, had made practice descents on chutes that were shorter than those which permitted emergency escape from the top floors of towers.

2. The chute surface had been wet from a fog. This apparently allowed faster descent than might have been the case on a dry chute.

The installation gave fresh and frequent training in the use of escape chutes. Emphasis was given to the proper position to be taken and the method to be used to control speed of descent.

The electrical installations in elevator control buildings were carefully checked, with the objective of eliminating conditions that might cause electrical arcs and emergency powder building evacuation alarms.

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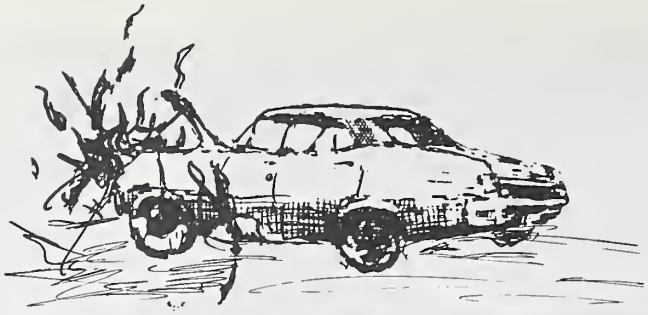

STARTING TRY IGNITES MAN AND VEHICLE

At midmorning, two soldiers were dispatched to retrieve a stalled patrol car. On the way they stopped at a post gasoline station to refuel their vehicle. One of the men filled a soft drink cup with gasoline for possible use in starting the balky car.

Upon arrival at the stalled vehicle the two soldiers set about the task of starting it. One lifted the hood and removed the air filter from the carburetor. The second seated himself behind the wheel and tried the starter. Several unsuccessful efforts were made to start the motor.

The men then decided to pour gasoline into the carburetor while the starter was activated. The man on the ground began to pour gasoline from the soft drink cup, while the other depressed the starter.

At this point the motor backfired. The flashing fumes ignited the shirt of the soldier who was pouring the gasoline. The startled man jumped back, spilling more gasoline from the cup onto the left front fender and the tire beneath it. This spilled gasoline burst into flames, which soon ignited the engine wiring.

The soldier beat out the flame on his shirt before he received any burns. The fire on the stalled vehicle burned slowly and Fire Department personnel soon arrived to extinguish it. The total damage was estimated to be $192.

A new standing operating procedure was written to apply strict guidelines for starting stalled vehicles. An effort was also initiated to secure adequate wrecker service. During fire prevention lectures special emphasis was placed on the hazards involved in the handling of gasoline.

****

ONE BLOW TOO MANY BURST TANK PATCH

An acid tank had been used for years. In the late 1950's or early 1960's a patch had been welded onto it. In late October 1969 a welding repair had been made to the patch. Now it was leaking again, and the leak was being examined by a contractor supervisor and two employees.

One of the workers tapped the leaking spot with a ball peen hammer, but he was unable to seal the leak. The supervisor then decided to empty the tank of its glacial acetic acid contents, and have fresh repairs made. Before he departed the area to have this done, the supervisor took the hammer from the worker and made one final effort to close the leak.

The supervisor's pounding was too much for the weakened weld patch. It failed and acetic acid gushed out upon the three men. Although handicapped by vapors released by the acid, the men made their way to a water hose near another tank and washed off the liquid. A little later the supervisor reached a safety shower and washed off a second time.

The men were taken to a hospital and treated for acetic acid burns and lung congestion. It was estimated that acid burns to one eye, skin, and chest, tracheitis and pulmonary congestion would cause the supervisor to be away from work for 45 days. Skin irritation on the face and chest, bronchitis and tracheitis would keep one worker away for 14 days. The third worker received less severe injuries and lost no time.

****

BUMP INTO DOOR BRINGS LOSS OF CONTROL

A fork lift truck was being used to move a pallet loaded with eight inert 8-inch projectiles. The route led down the loading ramp of a building. The driver failed to observe that an open loading door protruded some distance out into his path. He bumped into it and lost control of his machine.

The platform guard rail had been left open opposite the door. Before the driver regained control his machine moved across the platform edge and fell off on its side. The driver received a fractured hip from being pinned between an overhead guard support and a rail. Property damage was estimated at $900.

Photo 1

Photo 2

The employee was given a written reprimand and his driving privileges were suspended for 90 days.

Additional emphasis was given in installation materials handling training to the hazards involved in driving machines on ramps.

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HEAD CAUGHT IN HOT PIPING

The filling of 8-inch artillery projectiles involved the use of steam heated probes. A machine that raised and lowered the probes failed to cycle properly. A maintenance mechanic was informed that the cycle was not being completed and that the heated probes were not being retracted from the projectiles.

The mechanic attempted to correct the condition without complying with the plant's prescribed safety precautions for working on the machines. These called for action to relieve any residual pressure for operating the machine and for locking or tagging of control switches. He simply took a step or two up on a ladder, reached into the machine over the top of the probe carriage, and made an effort to break the carriage loose from an apparent binding on the center guide bars.

The machine broke loose from the pressure that had stopped it, and the carriage moved upward as it completed its cycle. The sudden movement caught the head and shoulders of the workman between the machine frame and the steam piping fixtures on the carriage. He was lifted off the ladder where he had been standing and was elevated over two feet off the floor level. The machine then stopped.

Efforts to reverse the machine were unsuccessful. The mechanic remained imprisoned until fellow workers pried apart the piping. This released his head from its position between the steam fixtures.

The mechanic received second degree burns on his hands and the left side of his face. Contact with the steam-heated surfaces resulted in third degree burns on the right side of his neck. He was expected to be away from work for 15 days.

The following actions were taken to prevent occurrence of similar accidents:

1. The injured man was given a written reprimand.

2. Maintenance personnel were given fresh instructions in lockout and tagging procedures. This included emphasis on the importance of draining or relieving pressure to assure that equipment could not operate.

3. An additional quick-relief valve was installed on this and similar equipment to assure the immediate relief of residual steam, air or other operating pressure.

4. Instructions were issued to employ effective blocking or securing by other means to prevent a disabled machine from completing its cycle or recycling, even though its prime movers had been inactivated.

5. A study was initiated to identify guarding that might be effective in preventing personnel involvement in the moving machine parts.

6. Production personnel were reinstructed to apply lockout and tagout procedures, as required by the plant's safety procedures.

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WATCH FOR UNSAFE LOCOMOTIVE MAINTENANCE OPERATION

Joseph R. Sheckells, Safety Inspector
Aberdeen Proving Ground

In recent years Army Materiel Command installations have reported numerous railroad operation actions that turned into accidents. In each incident an element of personal failure was involved.

Railroad locomotive maintenance personnel qualified to perform major overhauls were not available at the Proving Ground. Skilled workers from another installation were assigned to do the job.

In order to service the heavy rail equipment it was necessary to raise it from the ground to remove the undercarriage trucks. Four electrically operated screw-type jacks of 25-ton capacity each were employed, two on each side as shown in the photograph. When the engine was elevated to a height of between five and six feet, easy access was afforded for the removal of the trucks. Workmen, unmindful of the potential danger suspended over their heads and the fact that no equipment is infallible, proceeded with this task.

The APG Safety Division promptly pointed out the flagrant violation of safety regulations.

1. Four jacks were being utilized at 25-ton capacity each, for a 100-ton total lifting capacity. However, the locomotive weighed more than 100 tons.

2. The trucks, which weighed about 40 tons, were removed and 80 tons or more of locomotive remained. Although at this point the jacks were not overloaded, a hazardous condition still existed with workmen working under equipment that was not blocked.

Safety procedures covering maintenance and repair of railroad equipment are set forth in considerable detail in the following publications:

Army Pamphlet 55-1, Safety Rules, Transportation Railway Service

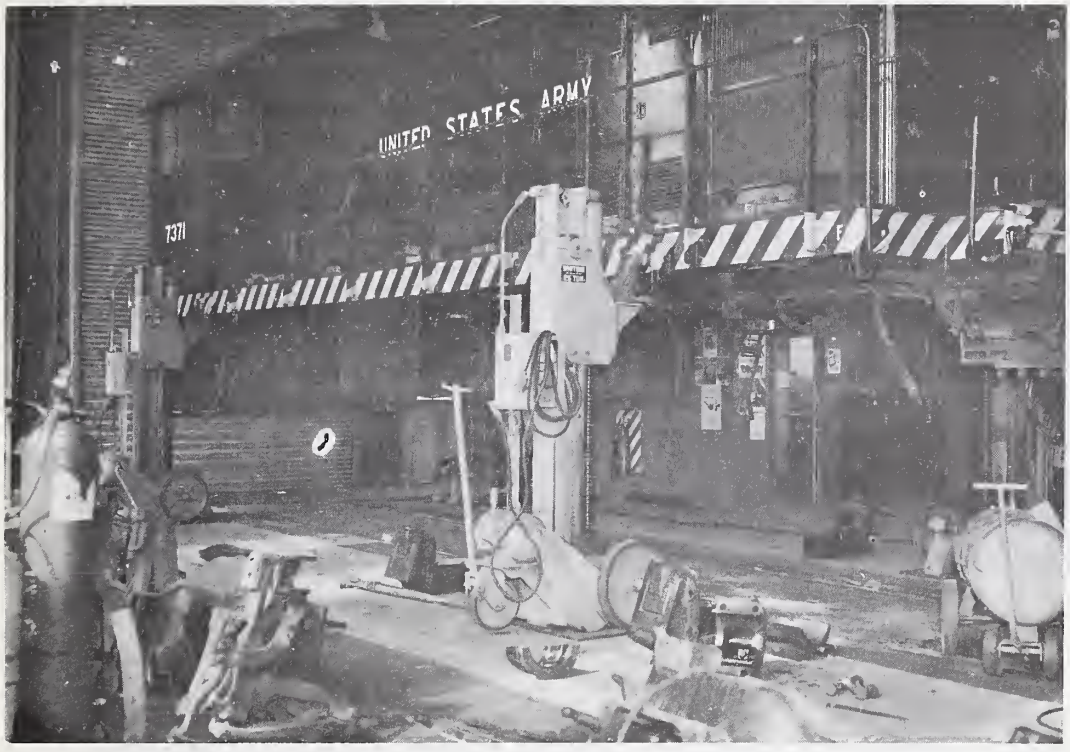
TM 55-203, Maintenance of Railway Cars

NSC Accident Prevention Manual

USA Safety Code for Jacks, B30.1-1943 (Rev. 1952).

Paragraph 26lb, TM 55-203 is an example of the emphasis these publications place on safe practices to be followed when work is performed on raised cars. It reads as follows:

> "After a car has been jacked up, trestles or blocks are placed under it. Going under or working on such equipment not so protected is prohibited."



The above photograph vividly depicts an infraction of safety regulations. (It also shows a cluttered worksite found by the safety inspector.) The unsafe condition was discovered through a routine inspection by members of the APG Safety Division. They also learned that the same unsafe procedure had been used by off-post personnel (not assigned to Aberdeen Proving Ground) for the past 12 years.

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PALLET SOLVES MATERIALS HANDLING PROBLEM

John Q. Watkins, Safety Officer
Aberdeen Proving Ground

A materials handling problem caused by the moving of the Technical Library was solved by the design and fabrication of a special pallet. The problem was that 250 safes and numerous filing cabinets had to be moved out of a two-story building. The traditional method would have been placing the safes individually in a sling and lifting with a crane. The crane operating time needed to move each safe or filing cabinet approximated five minutes. With 250 safes and many filing cabinets, this would have been a time consuming operation.

Photo 1

Photo 2

There was a need for a safer and more efficient method of moving safes. A special pallet that would meet the need was designed and fabricated which can be used with a crane or fork lift and has removable sides that contain the load. The pallet accomodates two safes or four filing cabinets. This was considered more effective than the use of slings as formerly utilized.

As a result of this innovation, the movement of safes and filing cabinets was improved by a factor of two to four. The usefulness of this pallet with plywood sides also facilitates movement of small boxes thus providing new equipment for other day-to-day material handling work requests.

Editor's Note: Mr. Watkins was a member of the FY 1968 Safety Management Intern Training Class at the AMC Field Safety Agency.

GIMMICKS DEVISED FOR SAFETY

N S C 1969 Annual Industrial Newsletter

With all the safety equipment and devices which have been introduced into industry, there is always a need for more new safety ideas and gimmicks to aid in the prevention of accidents. Often, a clever safety invention comes from an individual within one company and never spreads beyond the walls of that facility. Through the newsletters, companies are urged to share their safety ideas and inventions with others in their industry. Here are a few of the safety suggestions offered, which can be applied in some form to many operations.

CHOCKING WHEELS

Photo 1

Photo 2

Photo 3

Hand brakes frequently are not adequate to hold tank cars, particularly if they are parked on any appreciable decline. It is known that it is possible for air to bleed off the braking system when cars are parked for any length of time. A chock has to be used to prevent cars from rolling either way.

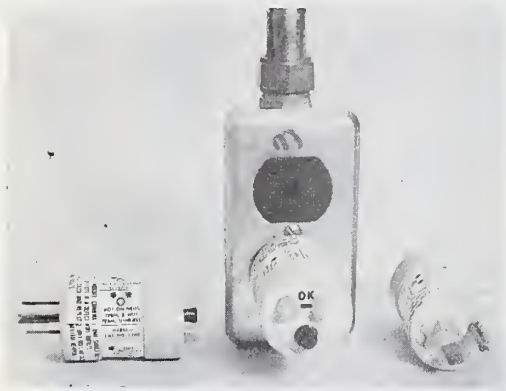
A simple, easy-to-handle chock, devised by the Southern Railroad, is shown above.

This chock is placed tight against the wheel. It lays flat. It chocks both sides of the wheel, and spring action holds it firmly in place. The chocks can be kept in the plant's locomotive until used. They are painted orange so that the brakeman can spot them quickly.

-Joseph Molloy
Textile Section-May

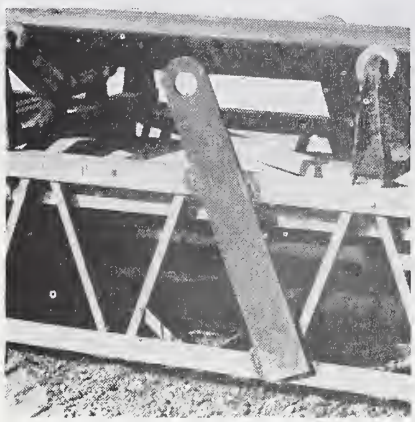
CIRCUIT TESTERS

Circuit testers are handy for checking the AC polarity and grounding of 115-volt, three-wire power outlets. These testers are simply plugged into a three-wire receptacle and, by means of a light, or combination of lights, indicate either correct wiring, reversed polarity, open ground wire, open neutral wire, open hot wire, hot and ground wires reversed, or hot on neutral terminal and hot terminal unwired. The light combination for each condition is printed on the center bank around the tester case. Use of receptacle circuit testers can greatly reduce the hazards of electric shock by assuring that electrical outlets and extension cords are properly wired.



--Aerospace Section August,

SAFE LIFTING DEVICE



Pictured here are general and closeup views of a lifting device that not only increases the safety in moving conveyors from one location to another, but also obviously increases the speed in which the operation can be performed. This simple device works as follows: when the conveyor is taken down, the balance point is determined, and four eyes are welded to it toward either end of the conveyor frame assembly. This ensures stability of the conveyor when it is lifted by the crane, and prevents dangerous tilting or swinging that normally results from lifting when the balance points have not been properly determined. Once these lifting eyes are placed on the conveyor frames, they remain.

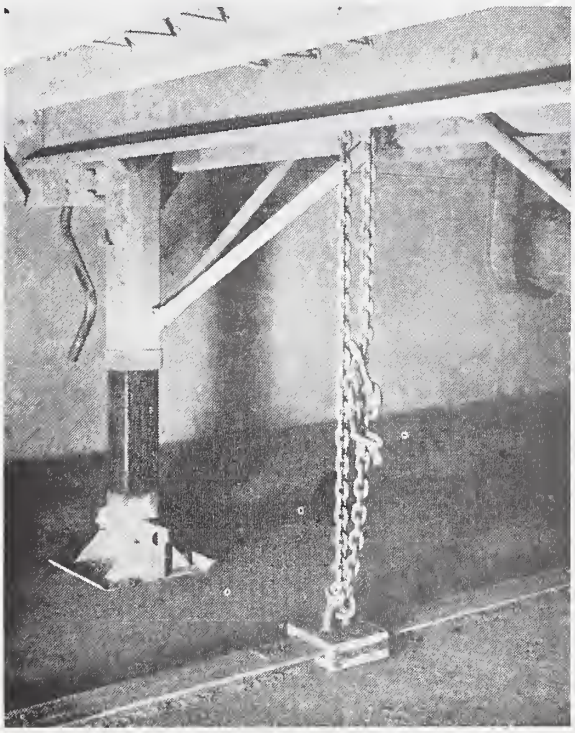
--Cement, Quarry, and Mineral Aggregates Section, August

DOCK SAFETY

Every year there are many serious injuries at truck docks caused by trailers not being blocked, or by heavy loads that cause the front end to tip up. The possibilities of accidents of this type are obviously greater when the tractor is disconnected from the trailer.

The hold-down shown is secured to an H-beam, which is set in the concrete dock floor. It can be adjusted to any length trailer by sliding it along the beam, and it can be removed when not in use, if desired. There generally isn't much pedestrian traffic in truck docks, and the exposed part of the H-beam could be painted yellow so it would not present a tripping hazard. This hold-down will prevent trailers from tipping up and, combined with wheel-blocking, will help prevent accidents at your truck docks.

--F. W. Feldon, Jr., Automotive and
Automotive and Machine Shop Section
August



THE CASE OF THE FLYING PAINT CAN

A lady was painting her kitchen with latex paint and had used aluminum foil to cover the roller pan. When the job was over, she gathered the aluminum foil from the edges, rolled it into a ball and deposited it in the empty paint can. She then pressed the lid on tightly and left the can in a corner of the kitchen. A short time later, the contents exploded, hurling the lid and residual paint against the ceiling with such force that a section of the ceiling had to be repainted.

The most accurate explanation is that latex paints frequently have a slight excess of ammonia which makes them alkaline. Alkaline materials react with aluminum releasing hydrogen. In this case, the release of gas was sufficient to build up a pressure great enough to blow the lid off. This could have caused serious injury to the housewife while removing the can for disposal, and even worse if she had a lighted cigarette in her hand or mouth.

SAFETY TIPS, AFLCRP 127-1, Jul-Sep 69, Hq, AFLC Aerospace Safety

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ALTERED EAR MUFFS MAY BE UNSAFE

Altered or improperly worn safety equipment may be dangerous, according to information contained in a recent National Safety Council release.

The story dealt with the practice, by some ground aviation personnel, of adding decorations to the ear muffs used to muffle harmful noises. The alterations frequently involved drilling the cup of the ear muff and securing decorations with clips or other devices. The result was a reduction in the muffling of excess noise.

Use of ear muffs for protection from noise is not confined to the airlines. Wherever the protective ear muffs are used, supervisors should guard against alterations being made.

Attention should also be given to the way in which the protective device is worn. Unless ear muffs are worn in the manner prescribed by the medical or safety supervisor, the cup may not fit tightly enough to provide the required seal and protection for noise.

CHECK YOUR MINIBIKE SAFETY RULES

Safety Office, Seneca Army Depot

The police have been plagued for some time by the ever growing number of minibike traffic offenses. The problem has become so accute in this area that the police took the unusual step of issuing a public reminder of the legal status of the bikes and their drivers. The reminder was accompanied by a public warning that the controlling laws would be strictly enforced.

The important thing to remember, the police said, that even though the vehicles look like toys and are used almost entirely for sport, they come under the definition of a motorcycle. They are subject to the same regulations that apply to motorcycles.

The following are examples of ordinances and laws that apply to minibikes:

1. The definition of public right-of-way on which drivers must be licensed and bikes registered and insured includes parking lots, school grounds and the shoulders of roads. Once the bikes venture off private property the operator or owner requires full liability coverage. Failure to obey the law carries a penalty of a fine from $100 to $1,000, or up to a year in jail, or both.

2. Drivers must be properly licensed. The law forbids the owner of any vehicle to loan it to an unlicensed driver. This provision could be applied in many cases to parents who allow their children to drive a minibike illegally.

3. The law requires that injury accidents and property damage accidents in which damage exceeds $150 be reported to police even if the accidents did not occur on a public way. Failure to report a minibike accident incurred in racing on farm land or a private track would make those involved liable to prosecution.

4. Minibike drivers, like motorcyclists, must wear crash helmets in public.

It is hazardous to drive the bikes on the highway because it is easy to overlook them. The line

of sight of rear view mirrors, especially in trucks, is likely to go straight over the head of a minibike driver.

In this area numerous minibike offenders have been taken into Family Court in recent months.

Editor's Note: With the coming of spring the use of minibikes will increase. Now is a good time to check on the laws that are applicable and the safety measures needed for the families of your personnel.

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SAFE DRIVING RECOGNIZED AT SENECA ARMY DEPOT

Safe driving by active Army personnel has won recognition at the Seneca Army Depot. Four of the five platoons of the 295th Military Police Company achieved accident-free driving records in FY 1969. The members of the four platoons received the U. S. Army Safety Award, DA Form 1119, and identification key chains inscribed with their names. Shown above are the members of one of the platoons after they received their awards from 1LT Hansen, Acting Commander, and 1SG Russell. Standing between these two (left to right) are: front row--LT Hansen, SGT Sweem, SP4 Lambert, SSG Smith, SP4 Baird, 1SG Russell; back row--SP4 McCoy, PSG Wieringo, SSG Blackwell, SGT Mathewson, SGT Scouten, and SP4 Schaub.

SAFETY DIVIDEND MATURES IN EIGHT YEARS

Don W. Moore, Senior Safety Engineer
Lone Star Division, Day & Zimmermann, Inc.
Lone Star Army Ammunition Plant

Like dividends on Savings Bonds, it often takes years for safety precautions and preparations to pay off. Such a safety dividend was reaped at Lone Star Army Ammunition Plant when the emergency horn blew and the red lights flashed on an automated assembly line for the Light Anti-Tank Weapon (LAW). The value of safety, engineered into equipment during the design stage, was fully realized. All the hours of planning, testing and preparing approved procedures some eight years before suddenly became a "blue chip" asset.

The emergency situation existed due to an M412 Fuze becoming armed after assembly into a LAW Warhead. To appreciate this condition one might compare handling one of these armed items to playing Russian Roulette with a fully loaded revolver. The M412 base detonating fuze is initiated by an electric detonator or, by a stab primer if the electric detonator fails to function. The two initiators are installed parallel in a rotor which turns 90° into the armed position upon firing of the weapon. A warhead with an armed fuze is extremely hazardous and must not be handled. The fuze's stab primer will function if jarred slightly or if it is tilted as much as seven degrees. The precarious condition of an armed fuze is further compounded by the sensitivity of the electric detonator. This factor necessitates the absolute in grounding of personnel and equipment.

The potential hazard of an armed fuze must be considered in each phase of loading or assembly and provisions made for destruction at the site with no personnel exposure. It is paramount that constant inspections be made to determine that the fuze is in safe position before further processing.

Photo 1

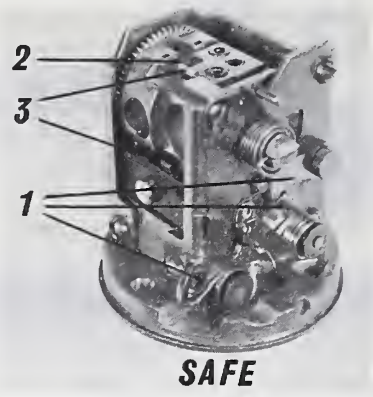

Photo 2

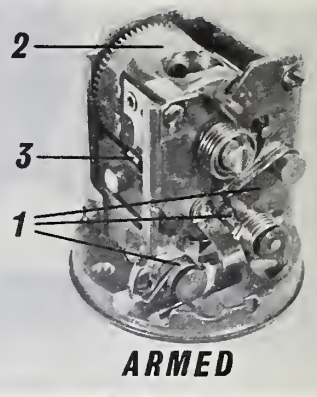

Photo 3

A viewport in the fuze housing permits visual inspection of the rotor for safe position as illustrated in Photo 1. The fuze is armed when the slot in the shaft is vertical. An inspection is made immediately upon unpacking the fuze and upon each handling prior to placing a closure over the fuze.

The M412 Fuze is typical of rocket launched fuzes in that it arms on setback only. The housing is removed in the first four photographs to illustrate the operation.

Item 1 in Photo 2 depicts a series of three spring-loaded detents which sustain the rotor in the safe position. The setback forces when launching the rocket overcome these springs, (see photo 3) and allows the rotor (item 2) to rotate to the armed position. Item 3 indicates the electric contact points which complete the circuit from the electric detonator to a piezoelectric crystal in the nose of the rocket. This crushes on impact and generates sufficient current to function the detonator.

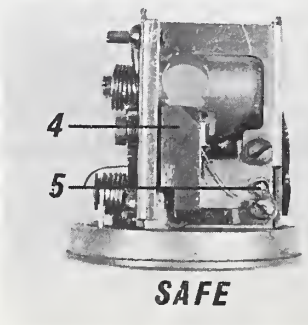

Photo 4

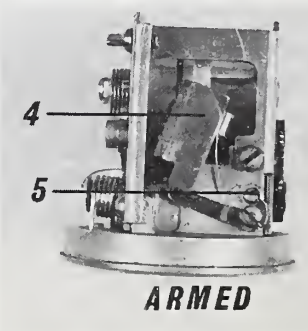

Photo 5

Should the target be missed, or an electric malfunction occur when the weapon is fired, a spring-loaded firing pin (graze element) mounted in the base. of the fuze (not shown) is released at the slightest impact. The pin will penetrate the stab primer, firing the round. This firing pin is retained by a shaft, item 5, as shown in Photos 4 and 5. The shaft is kept from releasing the firing pin by a hinged lead weight, item 4, which is also released by the rotation of the rotor. Once relieved by the rotor, this weight will release the firing pin by the slightest shock or jar, making this an "anti-disturbance" fuze.

Prior to assembly to a Warhead, a series of tests are made on the assembled fuze. The first is a drop test. This includes a turnover device and subsequent drop to fire the fuze, in a barricade, should it arm. The fuze is visually inspected on the conveyor belt after the drop test and provisions are made for destruction should it be armed. The fuze is then subjected to an electric circuit test within a shielded machine for safe position. Should the fuze be found armed at this station, the firing pin is removed by remotely manipulated tools.

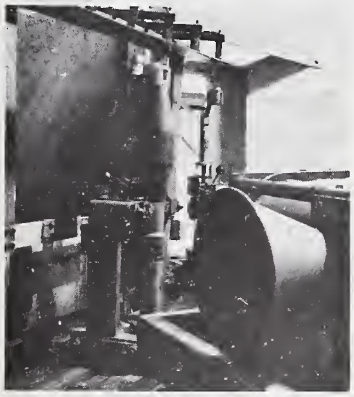

Photo 6

Photo 7

In designing the equipment for producing this item, it was decided a test for armed position should be made after the fuze had been assembled to the warhead with the fuze closure assembled and again after the fuze closure was soldered to the body. Day & Zimmermann engineers designed an electric circuitry to accomplish this. The circuitry includes provisions for automatically stopping both the conveyor and the remotely operated soldering machine, and for sounding an alarm for personnel to evacuate the building. Photo 6 shows a part of this equipment.

A fluoroscope, to view the fuze remotely, also was installed as a backup for the test circuitry to determine that the fuze was armed. (See Photo 7.)

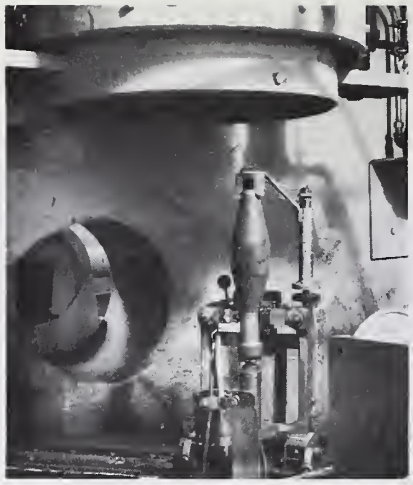

Photo 8

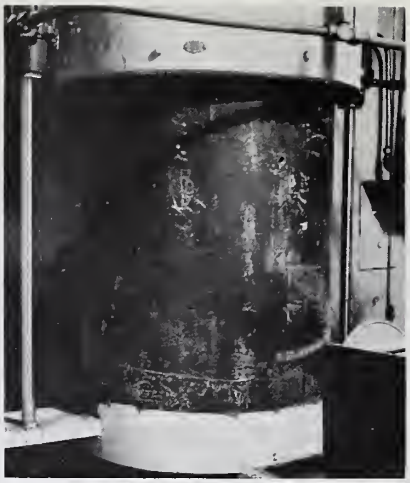

Photo 9

Should an armed fuze be found at this stage of production, provisions have been made to detonate the warhead in place. These provisions include equipment to eliminate unnecessary property damage. To accomplish this, a "through-the-roof" barricade, fabricated of a steel pipe 24 inches in diameter, was designed for installation near the inspection station (Photo 8). The barricade is equipped with powered cylinders whereby it can be remotely telescoped down over an armed warhead (Photo 9). A technical program for testing the adequacy of the barricade was formulated. The equipment was installed only after testing, modifying and retesting. Two methods were provided for firing the item: (1) by an electric current through the fuze; and (2) in the event it did not detonate, a remotely actuated gas-fired torch.

After operating for 8 years the equipment finally detected an armed fuze. Personnel evacuated the building, and a prearranged management investigating team was called to the location. After viewing the position of the rotor in the fuze by the use of the installed fluoroscope, it was agreed by all concerned that the fuze was in an armed position. The barricade was lowered over the warhead, and the fuze was detonated electrically.

The fact that the fuze and the warhead did detonate proved that the testing and viewing equipment was properly functioning. Very minor property damage was incurred to the conveyor chain at the point of detonation.

After eight years this long-term investment paid off, not only in dollars, but also in lives saved.

SAFETY REQUIREMENTS FOR ROCKET DISASSEMBLY

Safety Office, Aberdeen Proving Ground

The disassembly of rockets has introduced hazards of such a serious nature that a review of this problem is desirable in the interest of safety.

The hazards encountered in the disassembly of any high explosives-filled rockets are possible ignition of the igniter and possible detonation of the warhead. There is a difference between the explosion of a round of high explosives ammunition and a high explosives rocket. Under ordinary circumstances a round of ammunition may explode in place. If a rocket ignites, however, and because of its nature and construction, it may travel some distance from the point of ignition and may explode, causing damage or injuries at unrelated activities. Personnel and supervisors assigned to rocket disassembly operations must always be knowledgeable and alert to the dangerous characteristic of rockets.

All rocket disassembly operations are considered to be hazardous, especially if:

1. The item has been subjected to adverse testing or storage conditions.

2. The item has been roughly handled.

3. The item has been so assembled that undue force is required for separation.

Safety regulations require that operational shields be used for the protection of personnel performing such work and for those in the vicinity. Disassembly operations that must be carried out by remote control and behind barricades are outlined in Section 25, paragraph 2503, AMCR 385-224.

For the guidance of personnel and supervisors engages in the disassembly of rockets, listed below are some of the basic safety requirements to be observed. Compliance with these requirements should prevent the occurrence of incidents and injury to personnel.

1. Installation of an automatic alarm and deluge system.

2. Providing a reinforced concrete barricade equipped with a steel door.

3. Installation of a steel door interlocked with the disassembly equipment in such a manner that the machine cannot operate when the door is open.

4. Providing indirect viewing for observing the operation.

5. Assuring that the open end of barricades, which are used within a building, face toward a weak or venting type wall.

6. Any items awaiting disassembly should be protected from any incident in the barricaded disassembly location.

7. Disassembly equipment should be designed with a torque device to prevent forcing in the event threads are frozen or crossed.

8. After the rocket has been disassembled it should be permitted to remain in the fixture sufficiently long to allow dissipation of heat.

9. Prior to starting operations an approved standing operating procedure must be written, approved, posted and followed.

Supervisory personnel assigned to operations involving rocket disassembly should review their standing operating procedures to assure compliance with existing safety requirements. Supervisory personnel should inspect disassembly operations frequently and require immediate correction of all deficiencies.

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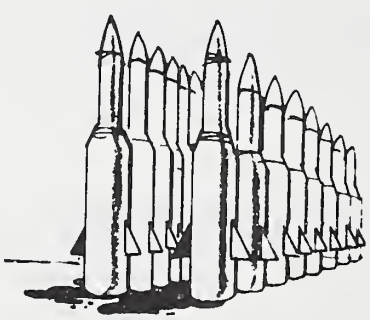

REACTIONS OF OAKITE 62 WITH EXPLOSIVES MIXTURE

Safety Office
Mason & Hanger - Silas Mason Co., Inc.
Cornhusker Army Ammunition Plant

Oakite 62, Oakite Products, Inc., is a powdered alkaline-type cleaning material with lime-solubilizing properties which may be used for cleaning and descaling recirculation water systems. Initial tests of this material for compatibility with the explosives mixtures minol and tritonal revealed a strong reaction with the evolution of heat and hydrogen gas.

With this information, more extensive experimentation was conducted to determine the extent of hazard which could be developed with these materials.

EXPERIMENT NUMBER 1:

Two grams of Oakite 62 was introduced into a mixture of minol and water in a 20 milliliter beaker. Introduction of the Oakite 62 generated temperature rise of 600°F. in 10 seconds, with a consequent spontaneous ignition of the minol. A spongy, white residue remained.

EXPERIMENT NUMBER 2:

A 50 per cent normal solution of Oakite 62 was added to a 2-gram sample of tritonal in a 20 milliliter beaker. This resulted in a temperature rise of 690+°F, in 10 seconds. The thermometer was broken and spontaneous ignition occurred. Combustion was incomplete and a black, spongy residue remained.

EXPERIMENT NUMBER 3:

A 40 per cent normal solution of Oakite 62 was added to a two gram sample of tritonal in a 20 milliliter beaker. Spontaneous ignition did not occur.

Analysis of the Oakite 62 revealed a mixture of a reactive metal in combination with other basic salts.

This material was determined to be incompatible with the explosives mixtures tritonal and minol and their components. Therefore it should not be used where it may come in contact with them.

* * * *

FIFTH AMC SAFETY TRAINEE CLASS PREPARED FOR ASSIGNMENTS

Participants of the FY 1970 US Army Materiel Command Safety Management Intern Training Program will begin three months on-the-job training about April 1, 1970. Before starting this phase of their training they will have completed six months of classroom instruction at the AMC Field Safety Agency. Three months was then devoted to gaining on-the-ground familiarity with the different types of AMC installations. Their on-the-job training will be received at the individual installations where they will be permanently assigned.

The individuals who completed the classroom instruction given the fifth class at the AMC Field Safety Agency are shown above left to right

Front Row: David C. Rittenhouse, Stanley B. Gaddy, Ron I. Corby, A. Ken Siler and Rodney G. Hammonds.

Second Row: Charles S. Jekofsky, Anthony S. Rizzo, William C. Griffey, Jerry G. Knudtson (Safety Engineer at the AMC Field Safety Agency) and V. Wayne Buisman.

Third Row: Bruce V. Heran, Charles Stanckiewitz, Wayne M. Cain, Joe K. Brunty and Robert M. Johnston.

ARE YOU ABOUT TO BECOME OBSOLETE?

Does it seem to you that there is a steady parade of fashionable new terms into the vocabulary of the professional safety man?

You do not have to be an old-timer to remember doing your work without talk of system safety, fault tree analysis, interfacing disciplines, configuration management, and other equally esoteric terms. What has come over the safety profession to produce the new terminology and methods? Is something developing that may make you obsolete?

Most of the strange sounding ideas and approaches are not as entirely new as their names may make them appear to be. Upon examination, they usually turn out to be application of old principles to basic safety problems. The terms often give names to old procedures effective safety and engineering personnel have been using, to some extent, to solve certain problems they encountered. These problems have been made more complicated by the present-day abundance of complex procedures and machines. More work is frequently required to solve today's problems because they are more numerous and more complex.

Let's take a quick look at a few of the basic principles on which the safety profession is built.

1. The primary safety objective is to prevent accidents; i.e., unplanned events that cause damage to materials or injuries to persons.

2. Prevention and correction of hazardous situations and procedures are major safety objectives. If a hazardous situation or procedure is allowed to exist, it will eventually produce an accident. An undesirable outcome is certain, but the timing and perhaps the extent of the accident may not be predictable.

3. The first step in solving a safety problem, as in the case in scientific research, law, human relations or any other field, is to define it. Once a problem has been accurately defined, it can in most cases be solved by the application of sufficient thought, knowledge and effort.

4. Diligent work is usually required to accomplish any important task.

Men have been applying such principles as these for a long time. They have often achieved a high degree of success. The proof of this is that we have advanced to our present level of development.

In the Army Materiel Command we have an abundance of problems that require the application of a wide variety of technical skills. Any one of our systems, such as a new Army aircraft, can consist of thousands of components. All must meet certain standards, which may be extremely exacting, for the system to work as designed. Failure of a component becomes an accident if it detracts from the intended and safe operation of the system.

When thousands of components must be checked for conformity with standards and safety, the job obviously becomes complicated. Many specialized engineers, workmen and users become involved. Detailed plans and methods must be developed and applied to accomplish the job. New terms such as system safety and fault tree analysis are applied to the concepts and techniques that have been developed to insure that systems and their individual parts perform safely and as designed.

The men who apply new concepts and techniques are not super beings. They are simply individuals who have mastered and are applying new tools to solve problems they meet while accomplishing their part of a mission.

The new safety terminology is not going to make you obsolete. It simply identifies methods you may use to do your accident prevention job better. If you do become obsolete, this will be caused by your own failure to acquire the necessary training and knowledge available and to make use of the new and improved tools that have been developed by your hard working colleagues in the safety profession.

DO YOU KNOW

YOUR SAFETY ABCs?

* * * *

SAFETY AWARDS PRESENTED

TEST & EVALUATION COMMAND INSTALLATIONS

Five Test and Evaluation Command installations and activities received AMC recognition for their FY 1969 accident prevention achievements. The awards were pre - sented to the individual commanders by MG Frank M. Izenour, Commanding General, TECOM.

Photo 1 shows the AMC Award of Honor for Safety being presented to COL John O. Mayhall, Jefferson Proving Ground Commanding Officer. Jefferson Proving Ground won the award for the second consecutive year.

Photo 2 MG H. G. Davisson, Commanding General, White Sands Missile Range, accepts the AMC Award of Merit for his installation.

Photo 3 COL Paul S. Cullen, President, U. S. Army Field Artillery Board, Fort Sill, Okla homa, receives the AMC Award of Merit.

Photo 4 Presentation of the AMC Award of Merit to COL David J. Schumacher, Commander of the General Equipment Test Activity, Fort Lee.

Photo 5 The Electronic Proving Ground, Fort Huachuca, receives the AMC Commendation for Safety. Commanding Officer, COL Maynard C. Raney received the award from MG Izenour.

AMC SAFETY AWARDS MADE TO THREE U. S. ARMY MISSILE COMMAND ACTIVITIES

Three U. S. Army Missile Command installations and activities were winners of AMC safety awards for FY 1969. The Headquarters Staff of the Missile Command received the AMC Award of Honor. In photo (right) COL Eugene J. McGinnis, MICOM Chief of Staff, is shown as he accepted the award plaque from BG George H. McBride, Acting Commander, MICOM.

Photo 1

Photo 2

Rohm and Haas Company, Redstone Arsenal Research Division, won an AMC Award of Merit for safety in FY 1969. In photo (left) Mr. O. H. Loeffler, General Manager of the company's Redstone Arsenal Research Division, is shown receiving the award from COL Eugene J. McGinnis, MICOM Chief of Staff.

The Lawndale Army Missile Plant was a winner of an AMC Award of Merit for its FY 1969 safety program and record. Mr. K. V. Newton, Aeronutronic Plant Manager, Lawndale Army Missile Plant is shown in photo (right) receiving the award from COL Robert J. Proudfoot, Project Manager, Shillelagh Project Office, MICOM.

Photo 3

CHIEF, SAFETY OFFICE PRESENTS AMC AWARD OF HONOR TO US ARMY ABERDEEN R&D CENTER

Mr. G. L. Feazell (left), Chief, Safety Office, Headquarters, US Army Materiel Command, presenting the AMC Award of Honor for Safety to Colonel Howard C. Metzler, Commanding Officer of the US Army Aberdeen Research and Development Center, Aberdeen Proving Ground, Maryland. The ARDC received the coveted Award of Honor for Safety for FY 1969.

TOBYHANNA ARMY DEPOT WINS AMC AWARD OF HONOR

Tobyhanna Army Depot was the winner of a FY 1969 AMC Award of Honor for Safety. The award was won in competition with all the AMC depots. In the photo the award plaque is held by Leo Remakus, the Depot Safety Director since 1967.

FORT WINGATE ARMY DEPOT RECOGNIZED FOR 390 YEARS OF ACCIDENT-FREE DRIVING

Col Johhnie H. Tucker, Commanding Officer, Fort Wingate Army Depot, has presented National Safety Council Safe Driver Awards to 29 drivers who have driven a total of 390 years without recordable motor vehicle accidents.

First row: Abenicio M. Chacon, James Lunasee, Mike Barraza, Porfirio Baldonado, Tom Musket. Second row: Robert Vicenti, Enriquez Gonzales, Frank Dixon, Joseph Lopez, Juan Garcia. Third row: Rudolf Kline, Cleto Vigil, Alex Rodriguez, Benxes Sandoval, Joe Sky, Juan Gonzales, Hilario Mazon. (Not shown are Herman Baca, Albert E. Banteah, John L. Artley, Valentine Dallago, Porfirio Diaz, Isa Garcia,

Here are ten questions that will test your knowledge of safety requirements that you will need under different circumstances. The answers to all of them may be found in AMCR 385-224. How many can you answer without referring to the regulation?

1. Are igloo magazines considered to be barricaded for all classes of ammunition and explosives?
   Answer and reference: _____

2. If a class 2A propellant should be transferred from a metal-lined wooden box into an all metal box, would its quantity-distance class be affected?
   Answer and reference: _____

3. Is it permissible for a person to ride in the truck body or van of any motor vehicle when it is transporting explosives or ammunition?
   Answer and reference: _____

4. Is there any high explosive dust which should not be collected by a "wet collector" equipped vacuum system?
   Answer and reference: _____

5. Should braided cable wire rope be considered as a suitable material for use in making a sling?
   Answer and reference: _____

6. What level of humidification is usually effective in preventing static electrical accumulations?
   Answer and reference: _____

7. What fuel is generally preferred for use in explosive and inert areas at Army installations?
   Answer and reference: _____

8. Is it permissible to provide heat to a storage magazine?
   Answer and reference: _____

9. May a safety chute at a second story level begin at the edge of the building?
   Answer and reference:

10. What authoratative source should be consulted on machine guarding if the needed information is not available in Army publications?
    Answer and reference: _____

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TOOELE ARMY DEPOT WINS NSC AWARD OF HONOR

Tooele Army Depot has won the NSC Award of Honor for operating without a disabling injury for 3,265,355 man-hours without a disabling injury 10 July 1969 to 12 November 1969. Personnel of this Depot are congratulated for this outstanding accomplishment.

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REFERENCE PUBLICATIONS

AR 75-1 14 Oct 69	Explosives - Malfunctions Involving Ammunition and Explosives, Reports Control Symbol AMC-132 (MIN)
USAMC Supplement 1 to AR 50-21 16 Oct 69	Chemical and Biological Surety Program - Chemical - Biological Accident and Incident Control (CBAIC) (This supplement supersedes AMCR 385-22, 28 Sep 67.)
AMCR 385-27 14 Oct 69	Safety - Safety Regulations for Disposal of Bulk Chemical Agents and Munitions
AMCR 385-28 15 Oct 69, and Change 1, 19 Nov 69	Safety - Safety Regulations for Agent BZ
AR 385-40 29 Oct 69	Safety - Accident Reporting and Records

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PICATINNY ARSENAL
RECOGNIZES SAFETY PERFORMANCE

Seventy-six certificates of merit were awarded to sub-elements of 12 major Picatinny Arsenal segments in recognition of their safety performance in FY 1969. The awards represented superior achievement in the prevention of accidents, and embraced three categories of accident-free performance.

The Arsenal's certificate of merit award was based on 200,000 manhours without a recordable accident during 12 consecutive months of FY 1969. Annual safety trophies were awarded for either three million consecutive man-hours earned in a 12-month period without a recordable accident, or 200,000 consecutive man-hours earned over a 5-year accident-free period.

Under the program, which is coordinated by the Safety Division, awards are made annually to the segment that meets these requirements. A review of the records also revealed that the Arsenal's over-all safety performance record, by comparison, was the best in the past 5-year period.

The awards were presented at the monthly Central Safety Council meeting by Arsenal Commander, Colonel W. A. Walker. The meeting was attended by directors and the supervisors of the winning segments at the Headquarters Building. The representatives who received the awards and the trophies are shown below.

Seated (left to right) Col R. R. Boyd, E. V. Singer, F.E. Reilly, L. H. Ericksen. Standing : LT R. C. Ansley, J. A. Barker, MAJ M. F. Dougherty, F. R. Hickerson, F. F. Ferry, O. V. Freund, W. R. Kelly, B. Jones, J. P. Filiponne, R. H. Holmes, Dr. L. F. Nichols, and T. Konovitch.

"WELL... DID YOU KNOW?

Here are the answers to the questions on pages 42 and 43. All questions were based on information contained in AMCR 385-224. A reference to the pertinent paragraph follows each answer.

1. No. Igloo magazines are not considered barricaded for material in classes 3, 4, 5 and 6. Distances provided in Tables 1732 through 1735, AMCR 385-224, will not be reduced where storage of these classes is in igloo or special-type magazines.
Reference: Paragraph 1726d.

2. Yes. Propellants listed in Table 1731A, AMCR 385-224, are considered class 2A when stored in metal boxes.
Reference: Footnote, Table 1731A.

3. In most cases this is prohibited. It is permissible where the vehicle is transporting limited quantities of small arms ammunition with non-explosive bullets. The small arms ammunition must be in closed containers which are properly secured in the truck body. Seats shall be provided for personnel, who shall be restricted in number to the minimum required.
Reference: Paragraph 2207f.

4. Yes. Explosive D (ammonium picrate) should be collected in a dry system. Ammonium picrate is soluble in water. A "wet collector" which moistens the dust close to the point of origin and keeps it wet until the dust is removed for disposal is preferred for other high explosives. High explosives dusts that may be collected with "wet collector" equipped vacuum systems are TNT, tetryl, Composition B and pentolite.
Reference: Paragraph 2705.

5. Yes. Braided cable wire rope slings are generally more satisfactory than slings of chain or fiber rope.
Reference: Paragraph 910.

6. Humidification for preventing static electrical accumulations and subsequent discharges is usually effective if the relative humidity is above 60 per cent. However, some materials such as metallic powders and some pyrotechnic mixtures cannot be exposed to air with 60 per cent relative humidity because of the possibility of spontaneous ignition.
Reference: Paragraph 708.

7. Fuel oil is preferred. However, coal, natural or manufactured gases, and liquid petroleum gases may be used in both explosive and inert areas. Many of these may introduce certain hazards, such as incandescent particles, abrasive particles and the possibility of escaping gases from leaks.
References: Paragraph 526.

8. Although storage magazines, in general, should not be provided with heat, there are exceptions where it may be required. Examples are instances where condensation of moisture must be prevented or constant temperatures must be maintained.
Reference: Paragraph 1805b.

9. No. Exits to safety chutes must open on a platform, not less than three feet square, equipped with guardrails. The chutes shall begin at the outside of the platform and not at the edge of the building.
Reference: Paragraph 509a.

10. USA Standard Codes, published by the American National Standards Institute, should be consulted.
Reference: Paragraph 914c.

* Don't Keep PESTICIDES in the MEDICINE CABINET

SAFETY POSTER
U. S. DEPARTMENT OF AGRICULTURE
Cooperative Extension Service

UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON, D.C. 20315